Version 2.0

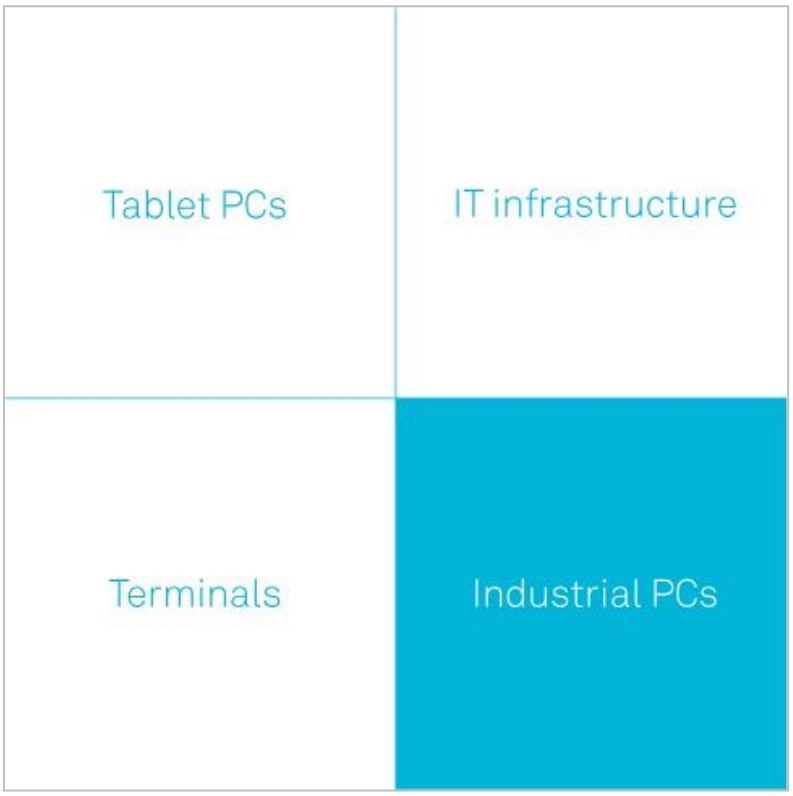
User Manual

Industrial PCs

IPC1300

the rugged world of IT®

Product Portfolio



Copyright
© ads-tec GmbH
Heinrich-Hertz-Str. 1
D-72622 Nürtingen
Germany

INDEX

About us **5**

1 Remarks **6**

1.1 Relevant device documentation **6**
1.2 Used symbol explanation **6**
1.3 Data, figures and modifications **6**
1.4 Trade marks **6**
1.5 Copyrights **7**
1.6 Ambient conditions **7**
1.7 Standards **8**
1.8 Models **8**

2 Safety information **9**

2.1 Place of installation **9**
2.2 Damage caused by improper use **9**
2.3 Warranty / repair **9**

3 Mounting **10**

3.1 Mounting options **10**
3.2 Device mounting illustration IPC1300 (24V DC) **11**
3.3 Device mounting illustration IPC1300 (230V DC) **11**
3.4 Mounting procedure **13**

4 Add-on card installation **14**

4.1 Pre-installation notes **14**
4.2 Notes on configuring the add-on card (PnP) **14**
4.3 Installing add-on cards **15**

5 Startup **16**

5.1 Available interfaces **16**
5.2 Cable installation **16**
5.3 Startup procedure **16**
5.4 Check of readiness for operation **17**
5.5 Status indicators **17**

6 Interfaces 18

6.1 Interface configuration 18
6.2 24V DC Power Supply 18
6.3 230V AC power supply 18
6.4 USB connections 19
6.5 Network connection (RJ45) 20
6.6 Serial COM interface (RS232) 20
6.7 External drives 21
6.8 Temperature monitoring 21
6.9 DVI-Interface 22

7 Drives 23

7.1 Hard drive / CompactFlash (IDE interface) 23

8 Software & driver installation 24

8.1 Installing the operating system 24

9 Technical Details 25

9.1 Computer technical data 25

10 Service and support 26

10.1 ads-tec support 26
10.2 Company address 26

ABOUT US

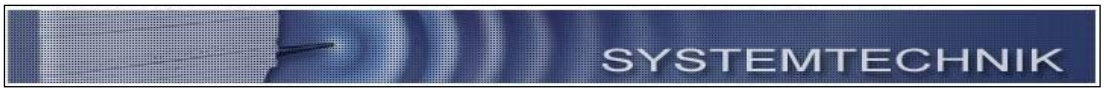
©ads-tec GmbH
Heinrich-Hertz-Str. 1
D-72622 Nürtingen
Germany

Phone: +49 (0) 7022 2522-0
Fax: +49 (0) 7022 2522-400
E-Mail: mailbox@ads-tec.de
Home: www.ads-tec.com

ads-tec GmbH provides large enterprises and globally active corporations with cutting edge technology, up-to-date know-how and comprehensive services in the area of automation technology, data processing technology and systems engineering.

ads-tec GmbH implements full automation solutions from planning to commissioning and is specialized in handling and material handling technologies.

The data systems division develops and produces PC based solutions and offers a broad range of industrial PCs, thin clients and embedded systems.



ads-tec is specialized in modifying and optimizing embedded operating systems and develops software tools to complement its hardware platforms.

1 REMARKS

1.1 RELEVANT DEVICE DOCUMENTATION

Consult the following documentation for information pertaining to device setup and operation:

USER MANUAL ON THE SERVICE CD (THIS DOCUMENTATION):

Contains information pertaining to device mounting, startup and operation as well as the technical data for the device hardware.

SERVICE CD:

Contains drivers, user manual and installation instructions for installing drivers.

1.2 USED SYMBOL EXPLANATION

Warning:

The "Warning" symbol refers to activities which might cause personal injury or damage to the hardware or software!

Note:

The "Note" symbol familiarises you with conditions to be observed in order to ensure flawless operation. Additionally, hints and advice are given for a more efficient use of the device and for software optimisation.

1.3 DATA, FIGURES AND MODIFICATIONS

All texts, data and figures are non-binding. We reserve the right of modification in accordance with technological progress. At that point in time when the products leave our premises, they comply with all currently applicable legal requirements and regulations. The operator/operating company is independently responsible for compliance with and observance of any subsequently introduced technical innovations and new legal requirements, as well as for all usual obligations of the operator/operating company.

1.4 TRADE MARKS

We would like to remind you that all software and hardware designations as well as trade names of companies used in this documentation are subject to the general, international trade mark, brand or patent protection laws.

WINDOWS®, WINDOWS® CE and WINDOWS® CE.net™ are trade marks registered by Microsoft Corp.

Intel® and Pentium® are trade marks registered by Intel Corp.

IBM®, PS/2® and VGA® are trade marks registered by IBM Corp.

CompactFlash® is a registered trademark of the Compact Flash Association.

All other nationally and internationally recognised trade marks and product names are hereby likewise recognised.

1.5 COPYRIGHTS

This manual, including all contained figures, is protected by copyright law. Any use for third parties non-compliant with the copyright provisions is prohibited. Any reproduction, translation as well as electronic and photographic archiving and modification shall only be permitted after explicit written authorisation by ads-tec GmbH.

Any party in violation of this provision shall be obliged to damage compensation.

1.6 AMBIENT CONDITIONS

The device can be operated in the following ambient conditions. The device warranty will be rendered invalid upon noncompliance with these specifications. ads-tec shall not be held responsible for damages resulting from improper handling.

- Temperature for devices with HDD
  during use 0 … 40°C
  in storage -20 … 60°C
  (due to temperature peak value memory inside)

- Temperature for devices with Compact Flash
  during use -20 … 45°C
  in storage -20 … 60°C
  (due to temperature peak value memory inside)
- Humidity
  during use 10 … 85% without condensation
  in storage 10 … 85% without condensation

- Vibration
  during use 1 G, 10 … 500 Hz
  (DIN EN 60068-2-6)

- Bump
  during use 5 G, at alternation of 30 ms
  (DIN EN 60068-2-27)

1.7 STANDARDS

This unit is compliant with the provisions and safety objectives of the following EU Directives:

- This unit is compliant with the CE mark testing specification limits as defined in the European test standards EN 61000-6-4 und EN 61000-6-2
- This unit is compliant to the DIN EN 60950 (VDE0805, IEC950) testing specification limits on "Safety of Information Technology Equipment"
- This unit is compliant to the DIN EN 60068-2-6 (sinusoidal vibration) testing specification limits
- This unit is compliant to the DIN EN 60068-2-27 (shock and bump) testing specification limits

Note:

A corresponding declaration of conformity is available for competent authorities, care of the Manufacturer. Said declaration can be viewed at all times upon request.

For full compliance to the legal requirements in force on electromagnetic compatibility, all components and cables used for unit connection must also be compliant with said regulations. It is therefore necessary to employ BUS and LAN cables featuring screened plug connectors, to be strictly installed as per the instructions contained in the User Manual.

1.8 MODELS

Two models of the system are provided:

PLATFORM WITH SSD:

This platform has no rotating mass storage media (e.g. hard drives) and incorporates an embedded operating system (Windows CE.net / XP embedded) for stationary use.

PLATFORM WITH HARD DRIVE:

This model includes a hard drive for stationary use in production environments and incorporates standard operating systems.

2 SAFETY INFORMATION

The device is electrically charged and contains highly sensitive components. Permissible modification by the user is limited to installing add-on cards. The manufacturer or a service provider authorized by the manufacturer should be consulted if any other modifications are to be carried out. Whenever such modifications are carried out the device must first be switched off and the power cable must be disconnected. The appropriate measures should be implemented to avoid electrostatic shock to the components upon contact. Opening of the device by a non-authorized person could result in hazards to the user and renders any warranty claims invalid.

GENERAL NOTICE:

- The manual should be read by all users and should be kept readily accessible at all times.
- Mounting, startup and operation should only be carried out by trained personnel.
- All persons using the device should observe the safety information and the manual.
- The rules and regulations pertaining to accident prevention should be observed in the place of device installation.
- The manual contains the most important information required for safe operation of the device.
- Proper storage, transport, installation and startup are required to ensure correct and safe device operation.

Caution:

The device should be switched off prior to connecting any cables (power supply, peripherals) to prevent damage to the device.

2.1 PLACE OF INSTALLATION

The control system is intended for installation in the control cabinet. The specified ambient conditions should always be adhered to. Use in non-specified environments (e.g. on boats, in explosive hazard areas or at extreme altitudes) is prohibited.

Caution:

In order to avoid formation of condensation, the device should only be switched on once it has acclimated to the room temperature. The same applies if the device has been exposed to extreme variations in temperature.

Preventing overheating during operation: The device should not be exposed to direct sunlight or other sources of light.

2.2 DAMAGE CAUSED BY IMPROPER USE

This device must immediately be shut down and protected from any accidental commissioning if the operating system shows any obvious damage caused by, for example, improper operating or storage conditions, or by improper use or handling.

2.3 WARRANTY / REPAIR

During the warranty period any repair must only be carried out by the manufacturer or by a person authorised by the manufacturer.

3 MOUNTING

3.1 MOUNTING OPTIONS

The device is intended for installation on control panels. If the device is mounted somewhere else, then the required ambient conditions should always be provided.

Caution:

Preventing overheating during operation: The device should not be exposed to direct sunlight or other sources of light.

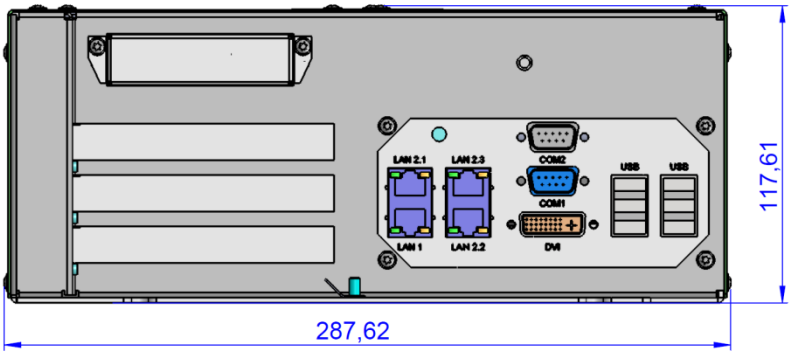
Measures to prevent heat accumulation should be implemented if the device is installed in a console, casing or similar enclosing structure. The maximum permissible ambient temperature should not be exceeded.

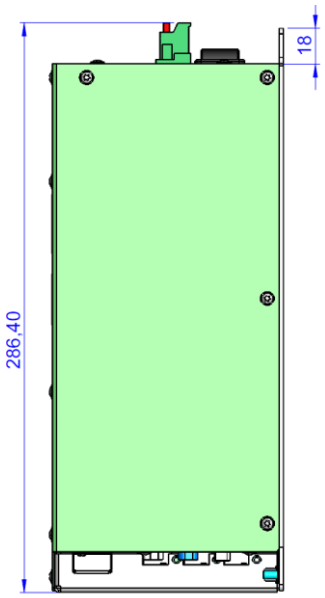
The front is only IP65 protected if mounted correctly.

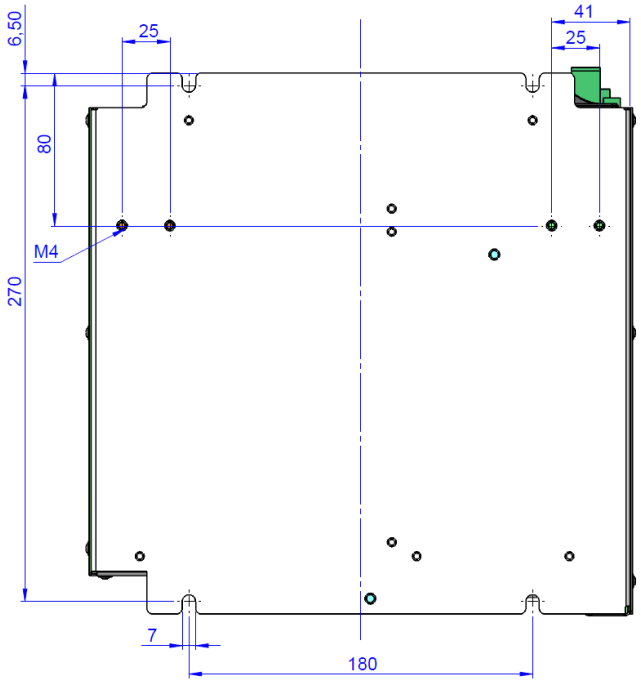
Note:

When selecting the mounting housing, the overall performance of the system including built-in cards has to be observed. The housing has to be calculated correctly, that the max. permissible ambient temperature is not exceeded.

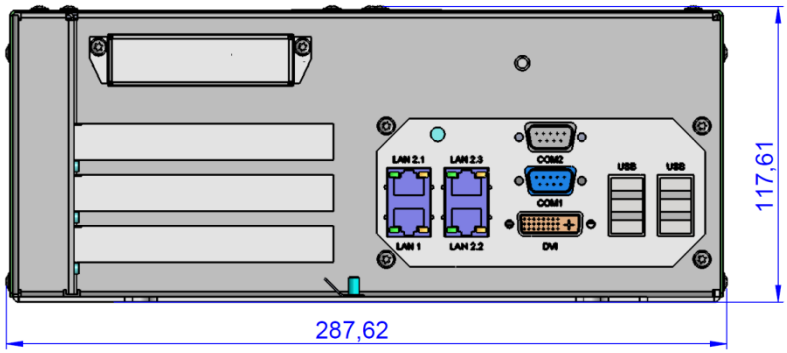
3.2 DEVICE MOUNTING ILLUSTRATION IPC1300 (24V DC)

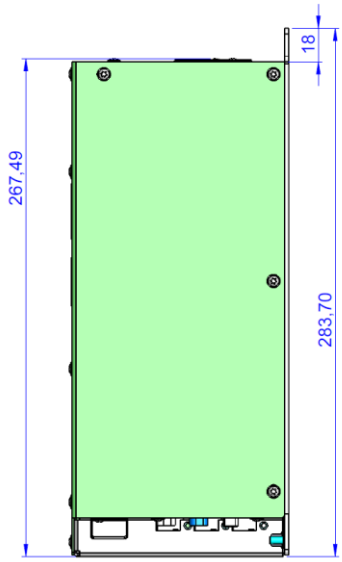


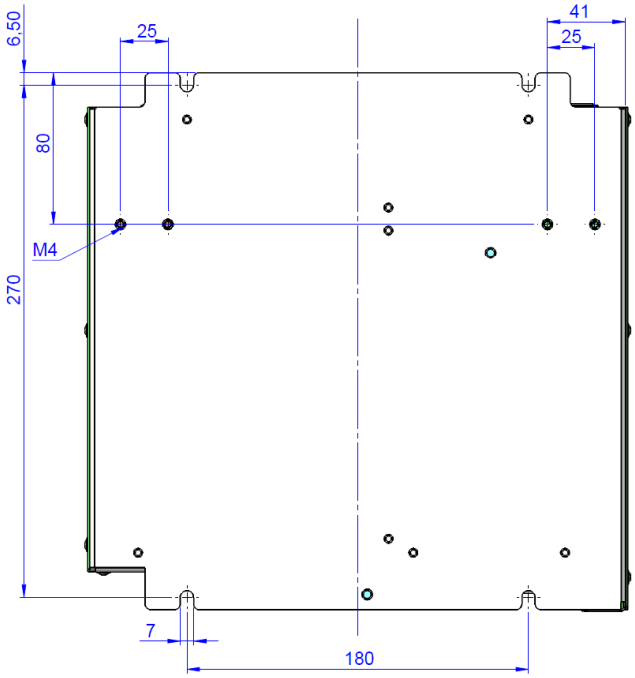




3.3 DEVICE MOUNTING ILLUSTRATION IPC1300 (230V DC)


LAN 2.1
LAN 2.3
COM2
COM1
USB
USB
LAN 1
LAN 2.2
DVI
117,61
287,62


18
267,49
283,70


6,50
25
41
25
80
M4
270
7
180

3.4 MOUNTING PROCEDURE

- Use the drilling template to drill holes according the mounting illustration in the control panel with the specified threading.
- Insert the upper screws half way into the control panel and hang the device on the mounting links.
- Tighten the screws and insert the rest of the screws.

Note:

The device is connected to the power supply using a lead out terminal with a screw connection. A ground connection does not have to be made, because the grounding conductor of the device plug or supply connection serves this purpose. If additional grounding conductors are attached to a grounding screw, a wire diameter of at least 2.5 mm² is specified.

4 ADD-ON CARD INSTALLATION

4.1 PRE-INSTALLATION NOTES

The user can install CompactFlash or PCI add-on cards such as Interbus cards in the device. The card slot is accessed by taking off the back cover. The crosshead screws on the back of the control system should be removed for this purpose.

Caution:

The components in the device are highly sensitive products, which can be destroyed or impaired by improper handling. The same applies to the PC add-on cards to be installed. Therefore the appropriate measures have to be implemented in all cases to avoid electrostatic shock to the components upon contact.

4.2 NOTES ON CONFIGURING THE ADD-ON CARD (PNP)

The Ethernet and IDE controllers on the adsX board are connected via an internal PCI bus. Therefore the addresses and IRQs are automatically assigned by the BIOS.

The following should be considered when installing or reconfiguring ISA cards:

- Install and switch on device without ISA cards and then note down the assigned IRQs and addresses.
- Install additional ISA cards in such a way that the IRQs assigned to PCI controllers are not used again.
- Reserve IRQs for ISA cards in the BIOS.

4.3 INSTALLING ADD-ON CARDS

- Switch off the device and all units connected to the PC and disconnect them from the power supply.
- Unscrew the cover screws using a matching screwdriver and carefully remove the cover.

Caution:

The cover may be connected to mechanical parts in the device by a grounding wire! Do not remove the cover with force...

- Reduce electrostatic charge by implementing the appropriate measures (see above), remove the add-on card from the packaging, place it in the slot and bolt it to the card mount.
- Each ISA card should be fastened in the matching slot with a clamp to prevent the card from falling out.
- Reconnect the grounding conductor if it has been removed and replace the cover while paying attention to the side clips as the case may be.
- Tighten all of the screws on the cover again.

5 STARTUP

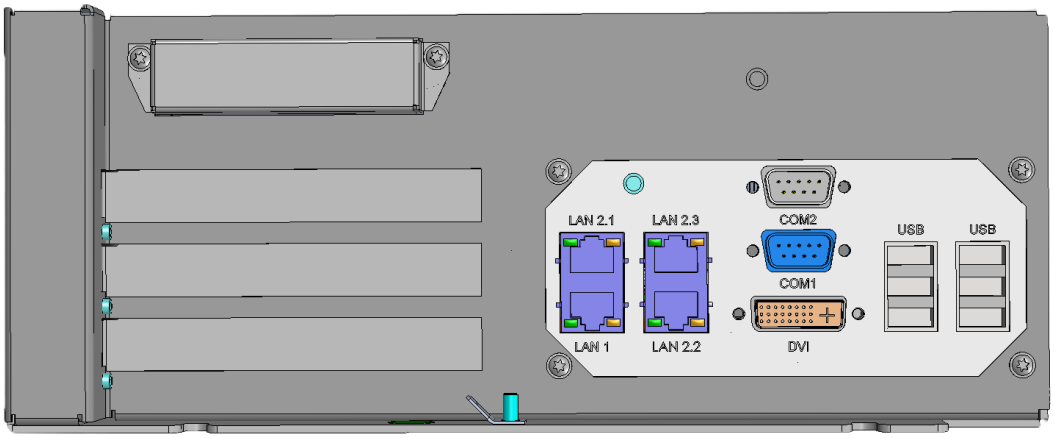
Caution:

The PC should be switched off before disconnecting plugs in order to avoid damage to electronic components! In order to avoid formation of condensation, the device should only be switched on once it has acclimated to the room temperature. Pay attention to the voltage permitted for the device.

You should allow five seconds to pass between switching the device off and switching it back on.

5.1 AVAILABLE INTERFACES

The devices have the following interfaces as standard.



Note:

Cable shielding of a data cable has to be connected to the plug connection casing (EMC).

The interfaces have to be enabled in the embedded operating system and the matching drivers have to be installed to be able to use the interfaces.

5.2 CABLE INSTALLATION

The device interfaces and power supply plug are found on the side of the casing. The free slots and the drives are found in the same place.

5.3 STARTUP PROCEDURE

- Connect device with suitable power source.
- Connect the cable for serial / parallel data transfer and fasten the plugs to the sockets.
- Connect all further required cables and secure against slippage.

5.4 CHECK OF READINESS FOR OPERATION

Check the device for any hidden damage caused by improper transport, improper operating or storage conditions or by improper use (e.g. smoke development from the device, etc.). Immediately shut down the device and prevent any further accidental commissioning if any damage is detected.

5.5 STATUS INDICATORS

SYS LED (BICOLOURED)

Depending on the colour and type of flashing, different device states are displayed by the SYS LED.

The following signals are displayed:

- LED lights green — The device is ready for operation (Power ON).
- LED is off — The device is switched off. (Power OFF)

6 INTERFACES

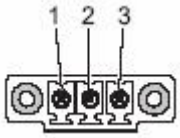
6.1 INTERFACE CONFIGURATION

INTERFACE	IRQ	ADDRESS
COM1	4	3F8h

6.2 24V DC POWER SUPPLY

The supply voltage is provided via a lead-through terminal including a screw connection. (The figure shows the socket inside the device)

PIN-NUMMER	SIGNAL NAME
1	24V DC
2	PE
3	0 V DC



Technical Data Power Supply

- Power Consumpion: Max. 150 Watt
- Input Voltage: 24V DC

Hinweis:

Die typische Leistungsaufnahme des Geräts wird im Kapitel „Technische Details“ aufgeführt.

6.3 230V AC POWER SUPPLY

An IEC connector is used as a power supply. The provided cable should be used to connect the device.

POWER SUPPLY UNIT TECHNICAL DATA

- Power consumption: Max. 150 Watts
- Input voltage: 100...240V AC

Note:

The device's typical power input is listed in the "Technical Details" section.

6.4 USB CONNECTIONS

The USB interfaces are used for connecting peripherals with USB connection. The interface complies with the USB 2.0 standard.

PIN NUMBER	SIGNAL NAME
1	VDC
2	D -
3	D+
4	GND

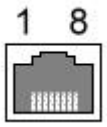
Note:

The USB interfaces may be locked using the Lock USB software tool.
You'll find this software and the documentation on the service CD.

6.5 NETWORK CONNECTION (RJ45)

If the drivers required for functioning are installed on the device, the control system may be integrated in an Ethernet network supporting the 10/100/1000 Mbit standard by using the Ethernet 10/100/1000BaseT network connector. Specifications of this network topology must be observed in this case. You can install the drivers required for functioning from the enclosed service CD, should they not be installed on the device.

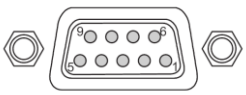
PIN NUMBER	SIGNAL NAME
1	TX +
2	TX -
3	RX +
4	NC
5	NC
6	RX -
7	NC
8	NC



6.6 SERIAL COM INTERFACE (RS232)

The serial interface is used for digital and for analogue data transmission as well. The RS 232 interface can be connected by using a commercially available 9-pin SUB-D cable.

PIN NUMBER	SIGNAL NAME
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI



Note:

This interface is not electrically isolated.

6.7 EXTERNAL DRIVES

By default, no drive for removable media (CD/floppy disk) is integrated in the device. Additionally the system provides an USB interface, with which an external drive could be connected. In this case, you'd have to ensure that the equipment used is suitable for use in an industrial environment.

Warning:

Connecting or disconnecting of external drives during operation is inadmissible, since it cannot be excluded that the drive is in use at this point in time. Data loss might occur if not observed!

6.8 TEMPERATURE MONITORING

The device includes a function for monitoring the internal temperature. If temperature inside the device rises above a predetermined level, then an error is indicated via the SYS LED on the front / interface plate. The alarm can only be reset by switching off the device. This gives the user time to acknowledge the alarm and introduce appropriate measures.

- Red flashing: Temperature too high in the device

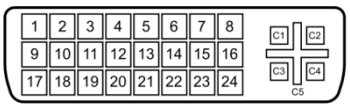
6.9 DVI-INTERFACE

The DVI-Interface is used to transfer analog and digital video signals. A DVI-I Cable is required to connect a digital display to the device. It is also possible to connect a VGA display by using a suitable DVI-VGA adapter.

Note:

The DVI-Interface is a Single Link Interface. The DVI-Interface wille be activated only in operating system mode!

PIN-NUMMER	SIGNAL NAME
1	TMDS Data2-
2	TMDS Data2+
3	TMDS Data2/4 Shield
4	N/C
5	N/C
6	DDC Clock [SCL]
7	DDC Data [SDA]
8	Analog vertical sync
9	TMDS Data1-
10	TMDS Data1+
11	TMDS Data1/3 Shield
12	N/C
13	N/C
14	+5V Power
15	Ground (for +5V)
16	Hot Plug Detect
17	TMDS Data0-
18	TMDS Data0+
19	TMDS Data0/5 Shield
20	N/C
21	N/C
22	TMDS Clock Shield
23	TMDS Clock+
24	TMDS Clock-
C1	Analog Red
C2	Analog Green
C3	Analog Blue
C4	Analog Horizontal Sync
C5	Analog GND Return: (analog R, G, B)



7 DRIVES

7.1 HARD DRIVE / COMPACTFLASH (IDE INTERFACE)

The choice of storage media depends on individual customer requirements. The following storage options are available:

Hard drive/SSD: This option implements a 2,5" Festplatte mind. 60 GB (SATA). The hard drive is formatted using the NTFS file system (Windows XP default).

Note:

Recommendations for choosing the storage medium for a basic installation:

CompactFlash: Windows CE.net / Windows XP Embedded

Hard drive: Windows XP Professional

8 SOFTWARE & DRIVER INSTALLATION

The device will be delivered with a pre-installed Windows operating system on request by the customer. The drivers required for this are already installed, and the operating system will be enabled by entering the licence information. Should an initial installation be required, please adhere to the following steps. With a newer operating system like Windows XP, the network card and graphics card will properly be recognised during initial installation, so that only the touchscreen driver and the soft keyboard must be installed separately.

Note:

If the hard drive was formatted, the operating system can be reinstalled by using one of the existing interfaces.

An external keyboard is required for installation.

8.1 INSTALLING THE OPERATING SYSTEM

If the device is not equipped with an integrated drive, installing the operating system can only be carried out by using the USB interface.

Procedure for installation:

USB:

- The boot drive in the system Bios must be switched to USB in order to boot the device from the USB interface.
- Restart the device and insert the Windows CD.
- Windows installation and basic data setup
- With devices using a touchscreen, the full functionality range or touchscreen drivers and the soft keyboard should be installed.

If Windows CE.net or Windows XPe is used, the entire operating system may be completely installed from the USB stick using the respective image. The required image can be purchased from the ads-tec company or via the ASSIX online portal.

9 TECHNICAL DETAILS

9.1 COMPUTER TECHNICAL DATA

The adsX module standard makes it possible to choose between different performance levels.

IPC1000 series	IPC1300	
Computer Data		
Processor	Celeron™ 1,2Ghz / Core™ 2 Duo 2,26GHz	
RAM	2GB RAM / 4 GB RAM	
Chipset	Intel GMA X4500 in GS45 Chipset	
Graphic memory	max. 256 MB shared	
Mass Storage	2,5" Automotive Hard Disk min. 60GB (SATA) oder 2,5" SSD	
Interfaces	COM 1 (RS232) COM 2 (RS232) 1 x DVI-I 6 x USB 2.0	
Network	4 x Ethernet (10/100/1000 MBit) RJ45	
Slots	2 x PCI, 1 x PCI express	
General Data		
External Dimensions (B x H x T)	288 x 118 x 270 mm ca. 3,8 Kg	
Weight		
Protection Class	IP20	
Power Consumption	ca. 50W	ca. 50W
Max. Switch On Current	24V DC /18A	230V AC /60A

10 SERVICE AND SUPPORT

The ads-tec company and their partner companies offer a comprehensive service and support to your customers providing a quick and professional support in case of any question with respect to ads-tec products and components.

Since the devices from ads-tech company are also used by partner companies, these devices might be configured according to customer requirements. Should any question or issue with respect to specific configurations and software installations arise, it can only be resolved by the system manufacturer.

For devices not directly purchased from ads-tec, we cannot be responsible for the support. In this case, the support is provided by our partner company.

10.1 ADS-TEC SUPPORT

Das Support Team von ads-tec steht für Direktkunden von Montag bis Freitag von 8:30 bis 17:00 unter der unten genannten Telefonnummer zur Verfügung:

Tel: +49 7022 2522-202

Fax: +49 7022 2522-2602

E-Mail: support@ads-tec.de

10.2 COMPANY ADDRESS

ads-tec GmbH
Heinrich-Hertz-Str. 1
D-72622 Nürtingen
Germany

Phone: +49 (0) 7022 2522-0

Fax: +49 (0) 7022 2522-400

E-Mail: mailbox@ads-tec.de

Home: www.ads-tec.de